State of California

The Resources Agency

Memorandum

To : Files

Date: February 27, 1989

From : Department of Fish and Game

Subject: Results of Sampling Fish in Big Grizzly and Little Last Chance Creeks, Plumas County, 1986

STANDING STOCKS OF FISHES IN SECTIONS OF
BIG GRIZZLY AND LITTLE LAST CHANCE CREEKS,
PLUMAS COUNTY, 1986

By

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INTRODUCTION

Fish were sampled in two tributaries of the North Fork of the Feather River in October 1986. Both Big Grizzly Creek and Little Last Chance Creek were examined to establish reconnaissance-level estimates of brown trout and rainbow trout biomasses in selected stream sections (Figure 1). The purpose of this work was to gather background data for an instream water needs study.

A preliminary sampling effort to collect baseline data on both Big Grizzly Creek and Little Chance Creek was made in September and October 1976. Only 32 rainbow trout were caught in Big Grizzly Creek with a total biomass of 3.7g/m^2. Both brown trout and rainbow trout were caught in Little Last Chance Creek. Combined salmonid biomasses ranged from 0.1 to 2.7 g/m^2 (Brown, 1976).

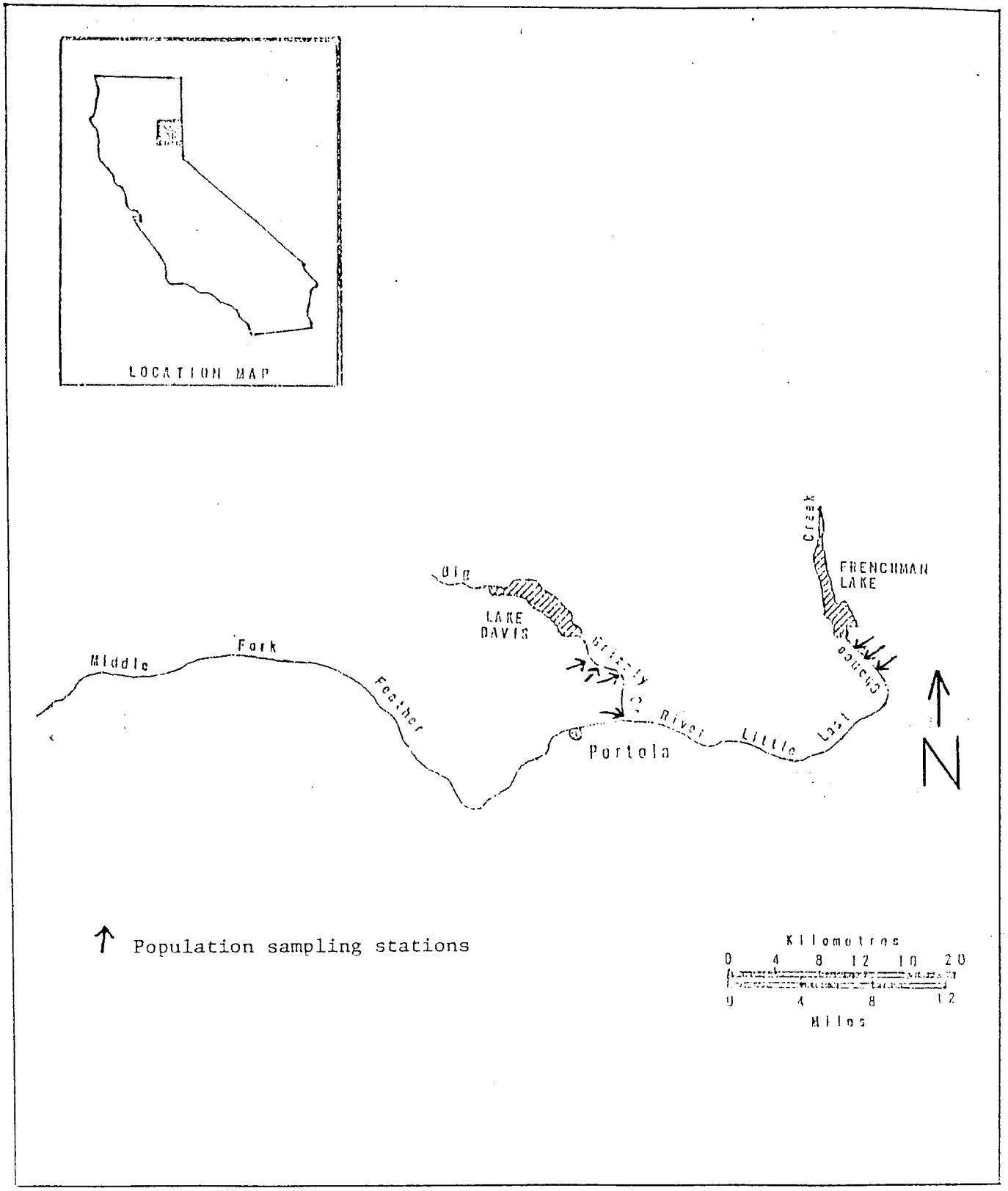

Figure 1 Fish population sampling stations on two Feather River Tributaries, 1986.

The stations sampled in 1976 were not consistent in length or habitat types, but strictly chosen for convenience to those sampling. Thus the data collected in September and October of 1976 should not be compared with that collected in September 1986. The data collectd in September 1987 should serve as baseline data for the years of sampling to come.

METHODS

Standing stocks of fishes were estimated in selected stations in two streams (Figure 1) in Plumas County. Fish were sampled in riffles and small pools. Stations varied in length from 32.5 to 103 metres, according to the availability of suitable sampling water (Appendix 1). The length, average width, and average depth of each section were measured with a cloth tape. Fish were captured with a battery-powered backpack electroshocker (Smith-Root, Type VII) in stream sections blocked by seines. Captured fish were removed from the net-enclosed section on each pass.

Standing stock estimates were developed using the two-count method of Seber and LeCren (1967) or the multiple-pass method of Leslie and Davis (1939) with limits of confidence computed using a formula proposed by DeLury (1951).

The weight of rainbow trout (Oncorhynchus mykiss) and brown trout (Salmo trutta) was determined by displacement (Appendices 2, 3, 4, and 5). Weights were not measured for Sacramento sucker (Catostomus occidentalis), brown bullhead (Ictalurus nebulosus), or green sunfish (Lepomis cyanellas). Fork length of each trout was measured to the nearest millimetre. Fish other than trout were not measured.

Scales were dry mounted between microscope slides and their images were projected on a NCR microfiche reader at a magnification of 42X. Scale measurements for the calculation of growth were recorded to the nearest millimetre along the anterior radius of the anterior-posterior axis of the scale.

Geometric mean functional regressions were used to describe the body-scale and length-weight relationships (Ricker, 1975). Estimation of true mean growth rate (G) was calculated using the methods of Ricker (op. cit.).

Distribution of all fish caught is listed according to location. Standing crops of rainbow trout and brown trout were calculated for individual stations. Age and growth and mean individual growth were calculated for rainbow trout and brown trout in both creeks. Age and catch percentages as well as length and weight relationship were determined for rainbow trout and brown trout in each creek. The coefficient of condition and 95 percent confidence intervals were calculated for rainbow trout and brown trout caught in both creeks.

RESULTS

Distribution

Big Grizzly Creek

In Big Grizzly Creek, rainbow trout were caught at every station. Brown trout and green sunfish were only caught at Station 4. Brown bullhead were caught at Stations 1 and 2, while Sacramento sucker, were caught at Stations 3 and 4 (Table 1).

TABLE 1. Distribution of Fishes in Sections of Big Grizzly Creek, Plumas County, 1986

	Station Number			
	1	2	3	4
Distance below Grizzly Valley Dam (km)	2.5	3.2	5.3	9.8
Rainbow trout	X	X	X	X
Brown trout				X
Green sunfish				X
Brown bullhead	X	X		
Sacramento sucker			X	X

Little Last Chance Creek

Rainbow trout and brown trout were caught at all stations, while Sacramento suckers were only caught at stations 2 and 3 (Table 2).

TABLE 2. Distribution of Fishes in Sections of Little Last Chance Creek, Plumas County, 1986

	Station Number		
	1	2	3
Distance below Frenchman Dam (km)	1.6	3.2	4.4
Rainbow trout	X	X	X
Brown trout	X	X	X
Sacramento sucker		X	X

Standing Crop

Big Grizzly Creek

Rainbow trout were the most common game fish caught in Big Grizzly Creek and biomass averaged 3.2 g/m^2 at four stations (Table 3). Brown trout were caught at only one station and the biomass was 15.3 g/m^2 (Table 4). Rainbow trout large enough for fishermen to keep (127 mm FL) averaged 2.5 g/m^2 and brown trout large enough to keep averaged 8.0 g/m^2.

Brown bullhead was the most common non-salmonid fish caught in Big Grizzly Creek. Biomass averages were not calculated for brown bullhead, Sacramento sucker, or green sunfish, since individual weights were not recorded for non-game fishes (Table 5).

TABLE 3. Estimate of Rainbow Trout Standing Crop in Big Grizzly Creek, Plumas County, 1986

Distance Below Lake Davis (km)	Population Estimate	95% Confidence Interval	Biomass g/m	Estimate of Catchable Trout (127 mm FL)	Biomass of Catchable Trout g/m
2.5	56	43-69	3.8	14	3.3
3.2	116	108-124	2.3	10	2.2
5.3	87	77-97	2.8	20	2.6
9.8	36	10-62	3.7	13	2.0

TABLE 4. Estimates of Brown Trout Standing Crop in Big Grizzly Creek, Plumas County, 1986

Distance Below Lake Davis (km)	Population Estimate	95% Confidence Interval	Biomass g/m	Estimate of Catchable Trout (127 mm FL)	Biomass of Catchable Trout g/m
9.8	42	8-76	15.3	42	8.0

TABLE 5. Estimates of Standing Crop of Nongame Fishes in Big Grizzly Creek, Plumas County, 1986.

Distance Below Lake Davis (km)	Species	Population Estimate	95% Confidence Interval
2.5	Brown bullhead	17	0-659
3.2	Brown bullhead	16	0-78
5.3	Sacramento sucker	4	0-11
9.8	Sacramento sucker	4	0-11
9.8	Green sunfish	15	13-17

Little Last Chance Creek

In Little Last Chance Creek, rainbow trout and brown trout biomass averaged 3.8 and 3.7 g/m^2 at three stations (Tables 6 and 7). Rainbow trout large enough for fishermen to keep (127 mm FL) averaged 8.2 g/m^2 and brown trout large enough to keep averaged 3.9 g/m^2. Sacramento sucker was the most common non-salmonid caught in Little Last Chance Creek. Biomass averages were not calculated for Sacramento sucker, since individual fish weights were not recorded for nongame fishes (Table 8).

TABLE 6. Estimate of Rainbow Trout Standing Crop in Little Last Chance Creek, Plumas County, 1986

Distance Below Frenchman Dam (km)	Population Estimate	95% Confidence Interval	Biomass g/m^2	Estimate of Catchable Trout (127 mm FL)	Biomass of Catchable Trout g/m^2
1.6	86	71-101	4.3	26	12.6
3.2	112	94-130	3.8	39	9.2
4.4	91	86-96	3.3	16	2.7

TABLE 7. Estimates of Brown Trout Standing Crop in Little Last Chance Creek, Plumas County, 1986

Distance Below Frenchman Dam (km)	Population Estimate	95% Confidence Interval	Biomass g/m	Estimate of Catchable Trout (127 mm FL)	Biomass of Catchable Trout g/m
1.6	14	10-18	4.3	12	4.9
3.2	5	3-7	0.61	3	0.92
4.4	12	11-13	6.3	16	5.9

TABLE 8. Estimates of Standing Crop of Nongame Fishes in Little Last Chance Creek, Plumas County, 1986

Distance Below Frenchman Dam (km)	Species	Population Estimate	95% Confidence Interval
3.2	Sacramento sucker	1	1
4.4	Sacramento sucker	15	6-24

Age and Growth

Big Grizzly Creek

The formula L = 7.8 + 5.0 S describes the relationship between the fork length (L) and enlarged scale radius (S) of 55 rainbow trout in Big Grizzly Creek. The coefficient of correlation (r^2) is 0.74. The formula was L = 10.9 + 3.7 S for 17 brown trout in Big Grizzly Creek. The value for r^2 is 0.85.

Growth rates for rainbow trout in Big Grizzly Creek were not calculated due to insufficient age class representation. Growth rates for 2+ brown trout were faster for population growth but slower for mean individual growth rate as compared to age 1+ brown trout (Table 9).

TABLE 9. Growth Rates for Brown Trout Caught in Big Grizzly Creek, 1986

	Population Growth			Mean Individual Growth		
Age Interval	Length Interval mm	Difference of Natural Logarithms	Instantaneous Growth Rate Gx	Length Interval mm	Difference of Natural Logarithms	Instantaneous Growth Rate Gx
1-2	90-183	0.710	2.2	90-183	0.710	2.2
2-3	183-368	0.699	2.54	237-368	0.440	1.60

Twenty-six 1+ rainbow trout were caught in Big Grizzly Creek. These fish averaged 175 mm in length, while 0+ fish averaged 90 mm in length. Due to limited age representation, back-calculations were not possible for rainbow trout. One 3+ brown trout was caught in Big Grizzly Creek; this fish measured 394 mm. Age 2+ brown trout averaged 170 mm, 1+ fish averaged 181 mm and 0+ fish averaged 156 mm in length (Table 10).

TABLE 10. Calculated Fork Length in Millimetres of Brown Trout from Big Grizzly Creek, Plumas County, 1986

			Calculated Lengths at Successive Annuli		
Age	No. of Fish	Length at Capture	1	2	3
1	12	173	90	-	-
2	3	197	90	183	-
3	1	394	84	237	368
Number of back-calculations			16	4	1
Weighted means (mm)			90	197	368
Increments (mm)			90	107	171

Little Last Chance Creek

The formula for 69 rainbow trout caught in Little Last Chance Creek was $L = 47.2 + 3.75\ S$. The coefficient of correlation is 0.72. The formula was $L = 48.6 + 3.3\ S$ for 28 brown trout caught in Little Last Chance Creek. The value for r^2 is 0.86.

Growth rates for 1+ rainbow trout and 1+ brown trout from Little Last Chance Creek were both faster for mean individual growth rates than for population growth rates (Tables 11 and 12). There was insufficient age class data for further growth rate analysis for both rainbow trout and brown trout from Little Last Chance Creek.

TABLE 11. Growth Rates for Rainbow Trout Caught in Little Last Chance Creek, 1986

	Population Growth			Mean Individual Growth		
Age Interval	Length Interval mm	Difference of Natural Logarithms	Instantaneous Growth Rate Gx	Length Interval mm	Difference of Natural Logarithms	Instantaneous Growth Rate Gx
1-2	126-189	0.405	1.24	113-189	0.514	1.57

TABLE 12. Growth Rates for Brown Trout Caught in Little Last Chance Creek, 1986

	Population Growth			Mean Individual Growth		
Age Interval	Length Interval mm	Difference of Natural Logarithms	Instantaneous Growth Rate Gx	Length Interval mm	Difference of Natural Logarithms	Instantaneous Growth Rate Gx
1-2	160-257	0.473	1.50	152-257	0.525	1.66

In Little Last Chance Creek, four 2+ rainbow trout were caught; these fish averaged 214 mm in length. Age 1+ fish averaged 170 mm and 0+ fish averaged 72 mm in length (Table 13).

TABLE 13. Calculated Fork Length in Millimetres of Rainbow Trout from Little Last Chance Creek, Plumas County, 1986

Age	No. of Fish	Average Length at Capture	Calculated Lengths at Successive Annuli 1	2
1	65	153	126	-
2	4	235	113	189
Number of back-calculations			69	4
Weighted means (mm)			125	189
Increments (mm)			125	64

Two 2+ brown trout were caught in Little Last Chance Creek; these fish averaged 301 mm in length. Age 1+ fish averaged 194 mm and 0+ fish averaged 98 mm in length (Table 14).

TABLE 14. Calculated Fork Length in Millimetres of Brown Trout from Little Last Chance Creek, Plumas County, 1986

Age	No. of Fish	Average Length at Capture	Calculated Lengths at Successive Annuli 1	2
1	26	221	160	-
2	2	330	152	257
Number of back-calculations			28	2
Weighted means (mm)			159	257
Increments (mm)			159	98

Length and Weight

Big Grizzly Creek

Big Grizzly Creek 0+ rainbow trout represented 88% of the catch, while 1+ fish represented 12% (Figure 2). Age group 0+ brown trout represented 6%, 1+ represented 70%, 2+ was 18%, and 3+ fish represented 6% (Figure 3).

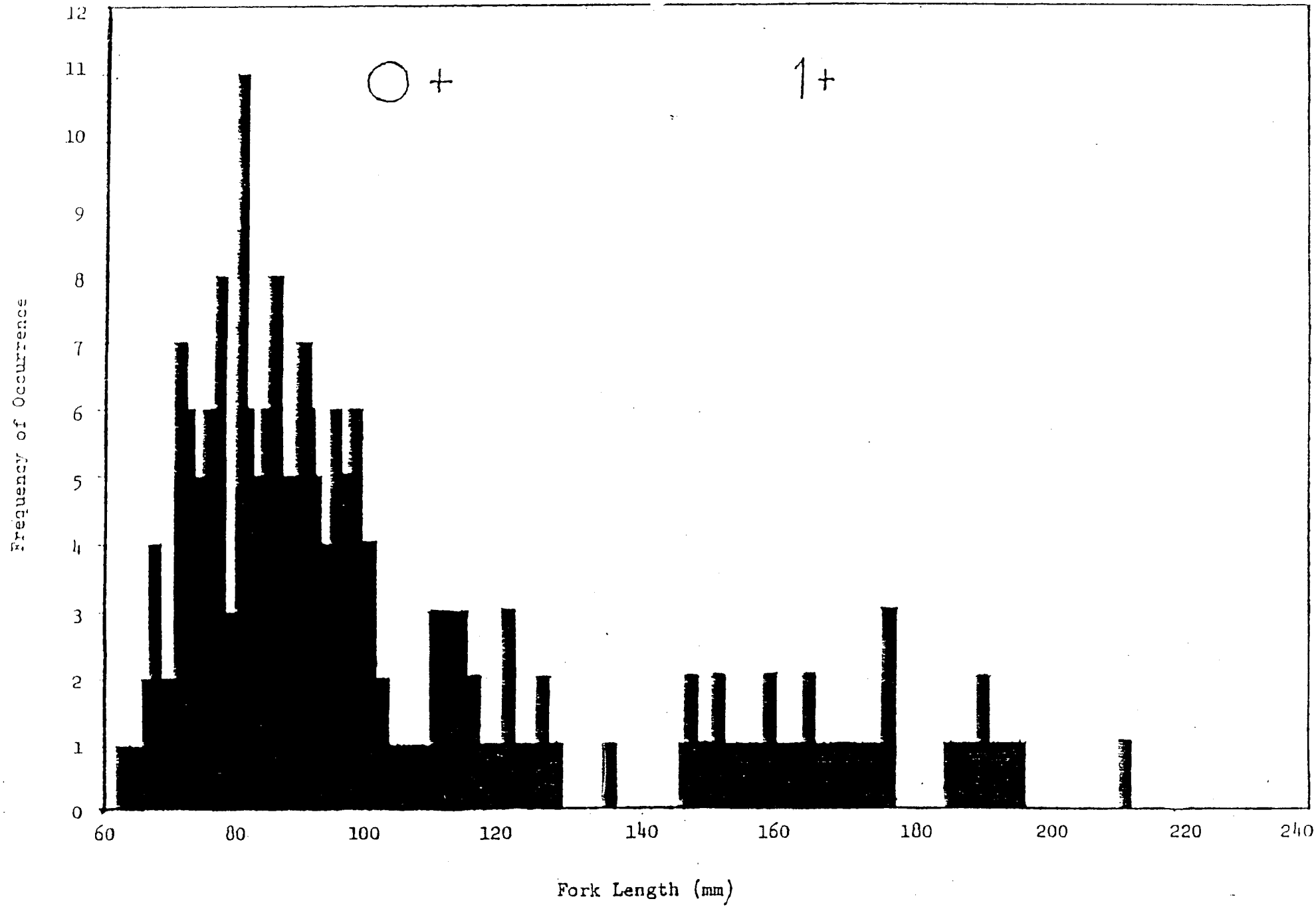

FIGURE 2 Length, frequency of occurrence, and age of rainbow trout caught in Big Grizzly Creek, Plumas County, 1986.

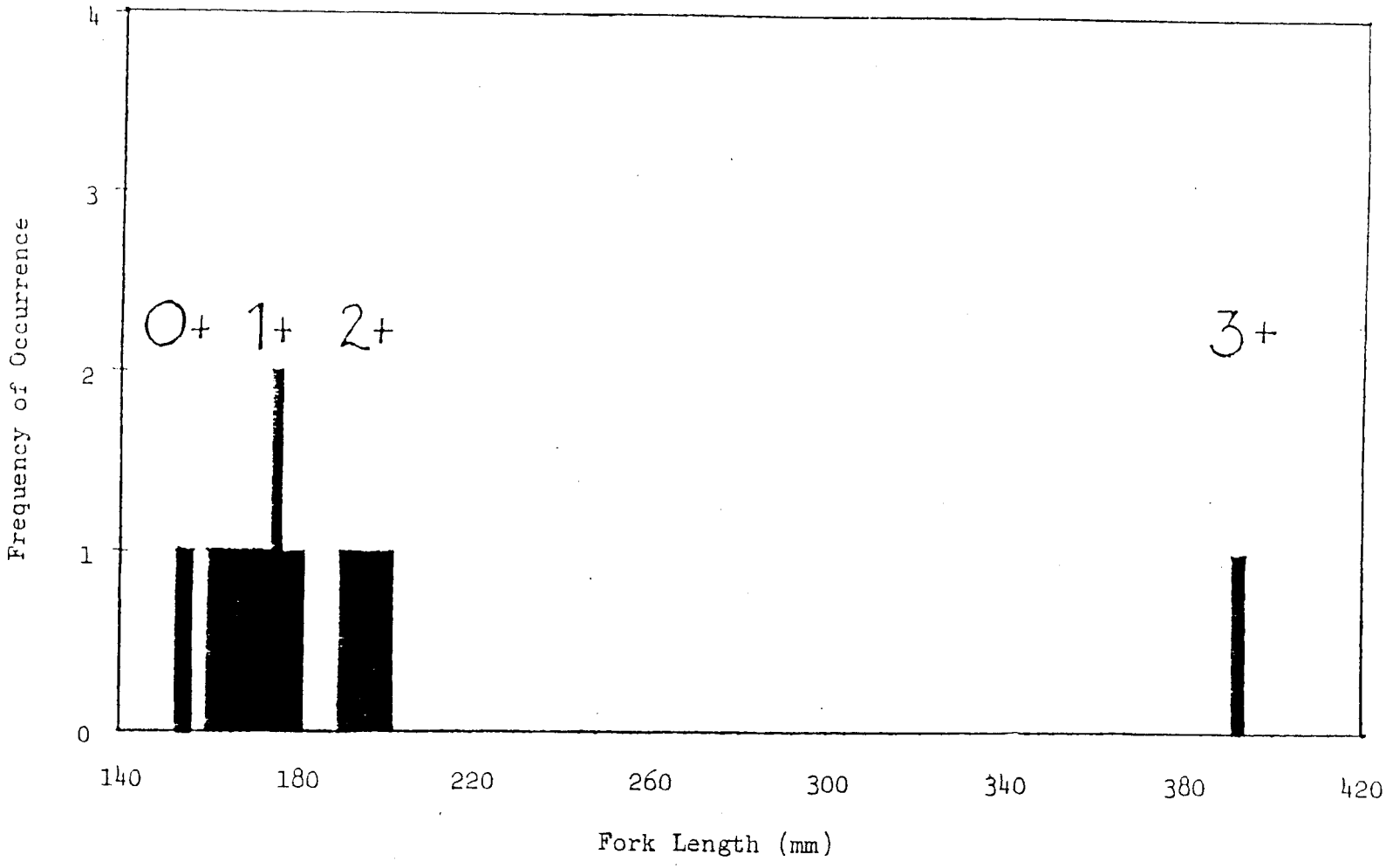

FIGURE 3 Length, frequency of occurrence, and age of brown trout caught in Big Grizzly Creek, Plumas County, 1986.

The relationship between length (L) and weight (W) of rainbow trout for Big Grizzly Creek is:

$Log_{10}W = -4.70 + 2.88\ Log_{10}L$

$r^2 = 0.98$

N = 224 (Figure 4)

The same relationship for brown trout is:

$Log_{10}W = -5.07 + 3.03\ Log_{10}L$

$r^2 = 0.98$

N = 17 (Figure 5)

Little Last Chance Creek

Little Last Chance Creek 0+ rainbow trout made up 76% of the catch, while 1+ fish represented 23% and 2+ fish represented 1% (Figure 6). Age group 0+ brown trout represented 7% of the catch, while 1+ and 2+ fish made up 86% and 7%, respectively (Figure 7).

The relationship between length (L) and weight (W) of rainbow trout for Little Last Chance Creek is:

$Log_{10}W = -4.72 + 2.89\ Log_{10}L$

$r^2 = 0.98$

N = 284 (Figure 8)

The same relationship for brown trout is:

$Log_{10}W = -5.01 + 3.04\ Log_{10}L$

$r^2 = 0.98$

N = 30 (Figure 9)

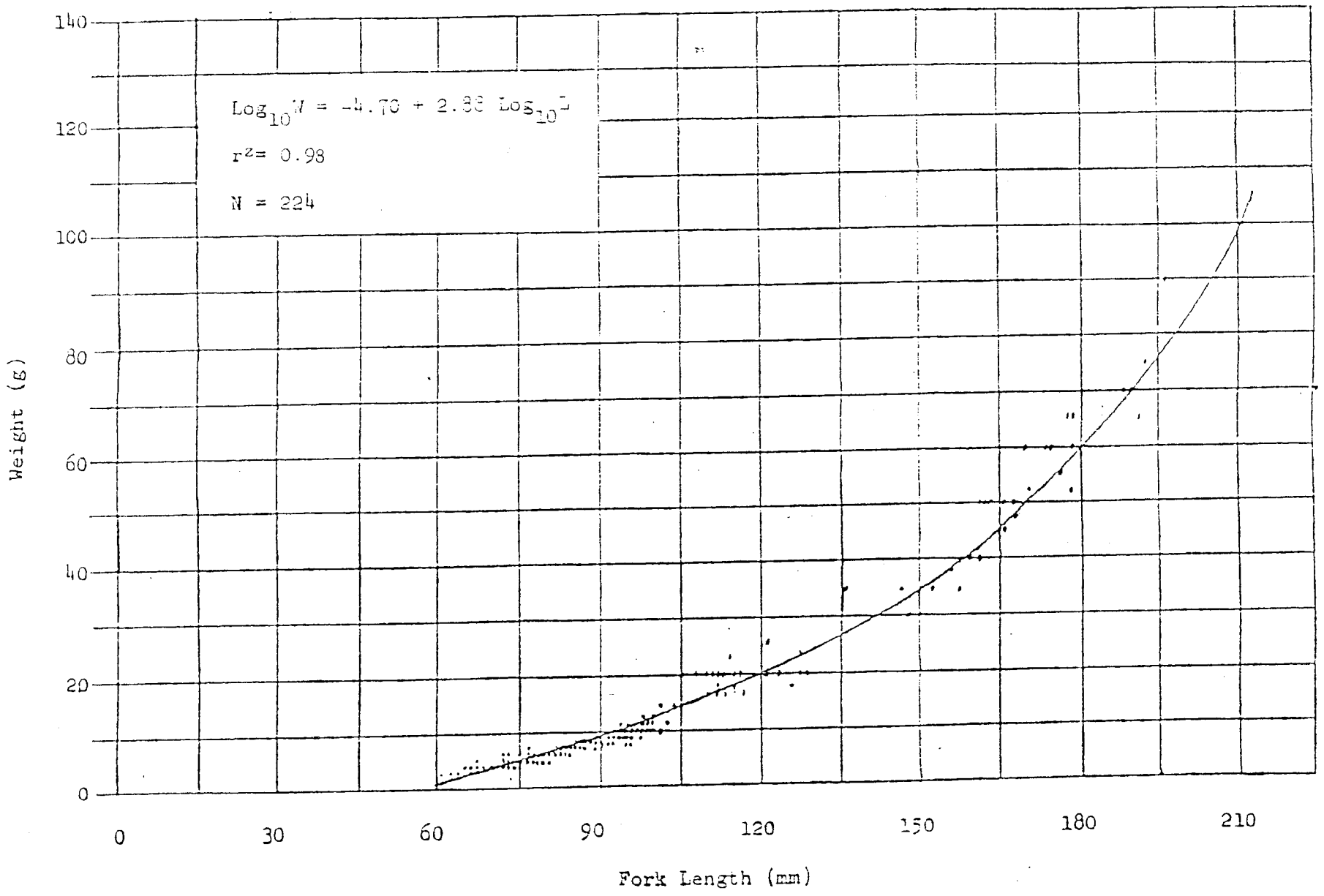

FIGURE 4 The relationship between length and weight of rainbow trout caught in sections of Big Grizzly Creek, Plumas County, 1986.

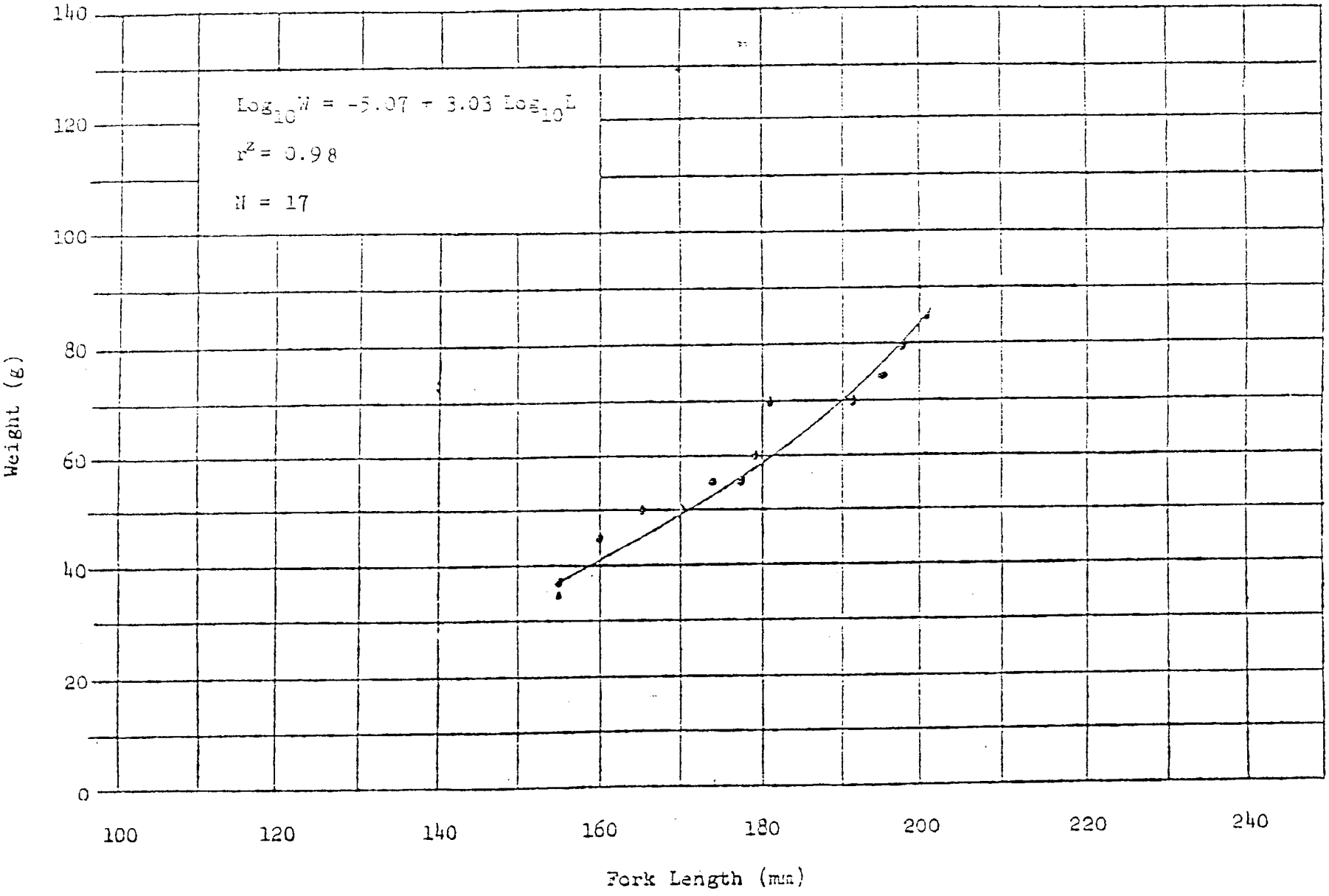

FIGURE 5 The relationship between length and weight of brown trout caught in sections of Big Grizzly Creek, Plumas County, 1986.

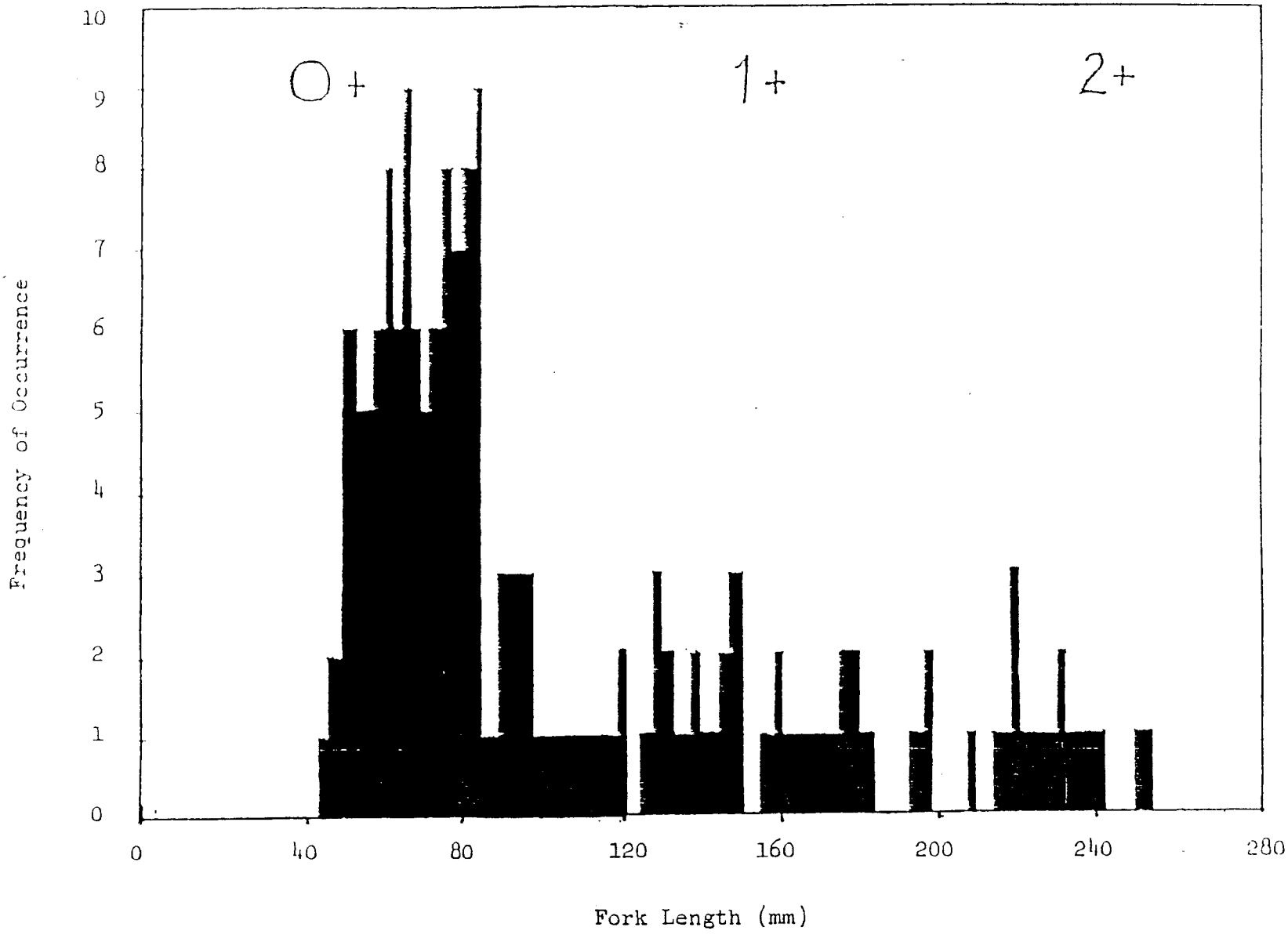

FIGURE 6 Length, frequency of occurrence, and age of rainbow trout caught in Little Last Chance Creek, Plumas County, 1986.

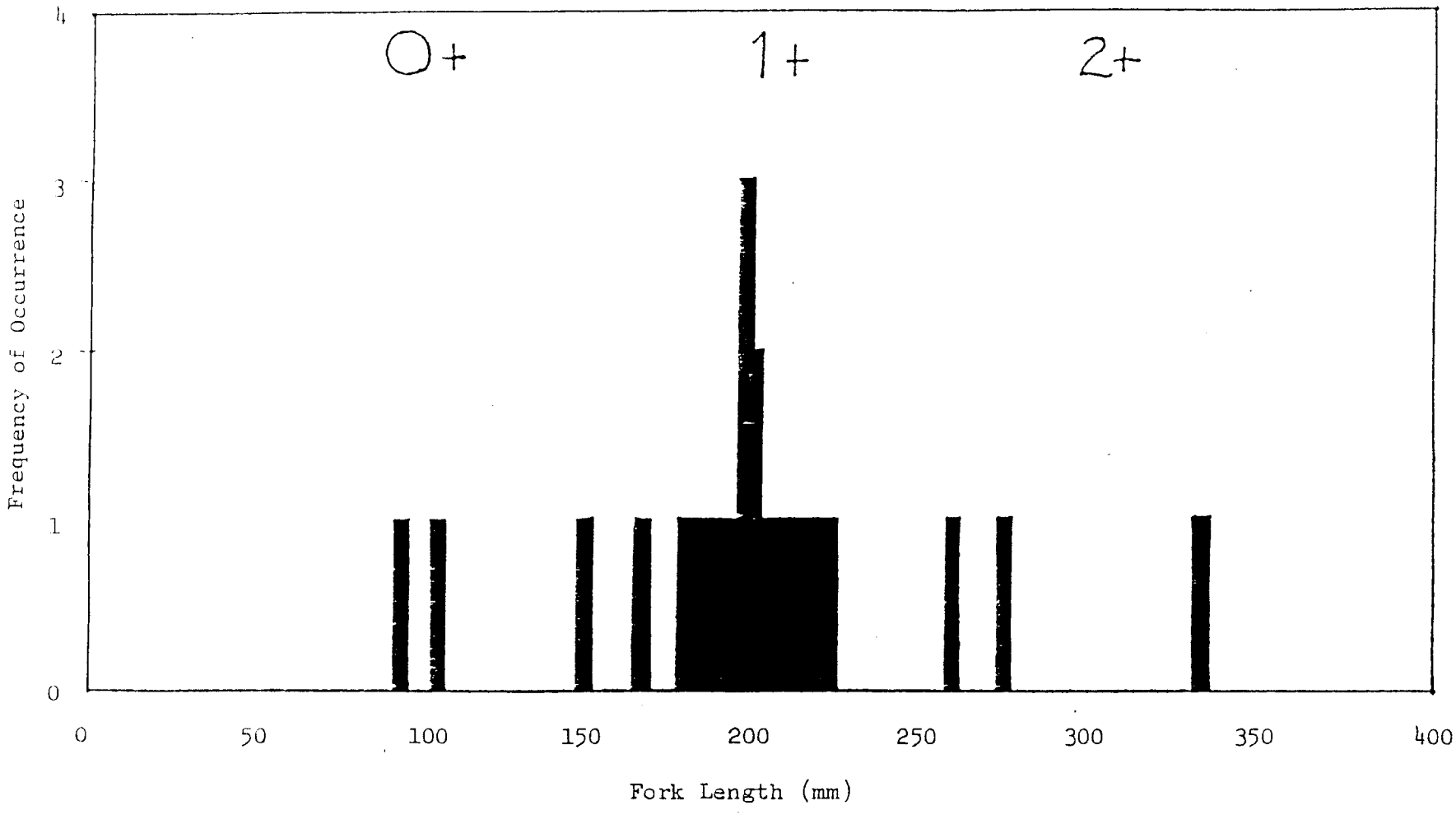

FIGURE 7 Length, frequency of occurrence, and age of brown trout caught in Little Last Chance Creek, Plumas County, 1986.

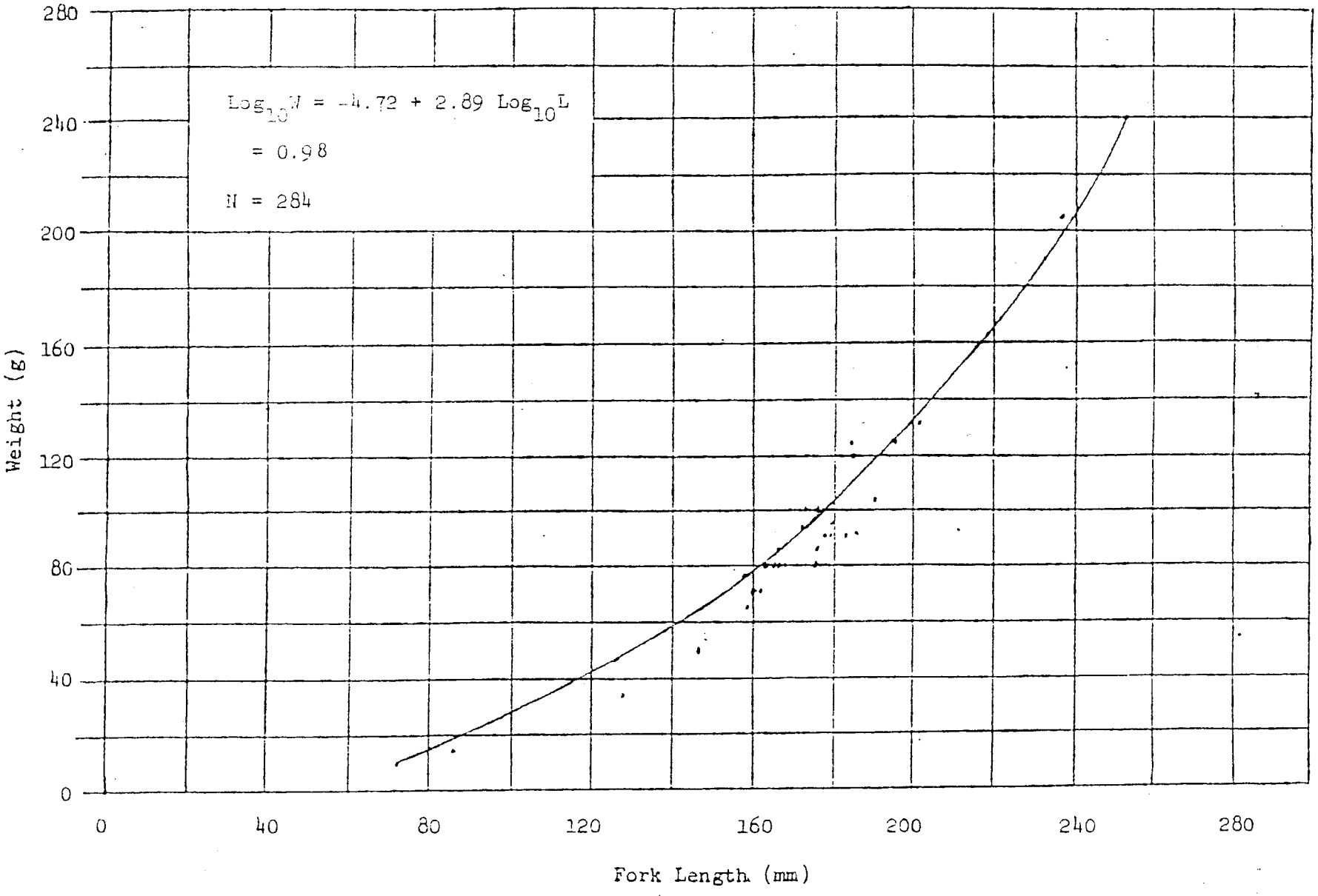

FIGURE 9. The relationship between length and weight of rainbow trout caught in sections of Little Last Chance Creek, Plumas County, 1986.

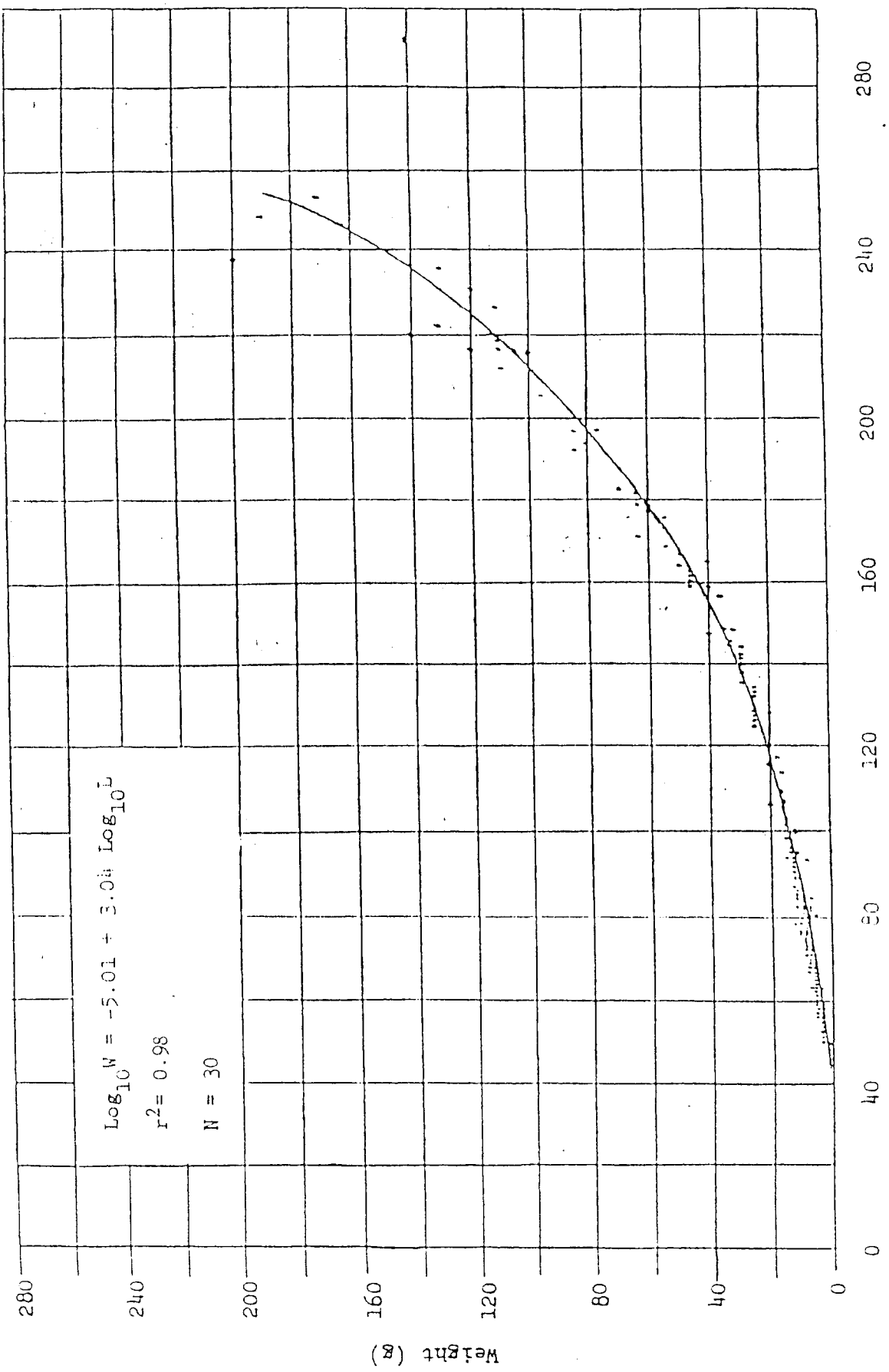

FIGURE 8. The relationship between length and weight of brown trout caught in sections of Little Last Chance Creek, Plumas County, 1986.

Coefficient of Condition

We calculated the coefficient of condition and 95% confidence limits for both Big Grizzly Creek and Little Last Chance Creek rainbow and brown trout (Tables 15 and 16). There is no significant difference between the coefficient of condition for any age group rainbow or brown trout we tested ("t" test, 0.05 level).

TABLE 15. Condition of Brown Trout and Rainbow Trout in Big Grizzly Creek, 1986

Age Group	Number of Fish	Coefficient of Condition	95% Confidence Interval
Brown trout			
0+	1	0.922	±0.000
1+	12	1.060	0.997-1.123
2+	3	1.110	0.995-1.225
3+	1	1.060	±0.00
Combined	17	1.040	0.920-1.16
Rainbow trout			
0+	198	1.169	0.785-1.553
1+	26	1.080	0.897-1.263
Combined	224	1.159	0.789-1.159

TABLE 16. Condition of Brown Trout and Rainbow Trout in Little Last Chance Creek, 1986

Age Group	Number of Fish	Coefficient of Condition	95% Confidence Interval
Brown trout			
0+	2	1.182	1.059-1.305
1+	26	1.198	0.852-1.544
2+	2	0.935	0.453-1.417
Combined	30	1.179	0.847-1.511
Rainbow trout			
0+	215	1.211	0.907-1.515
1+	65	1.107	0.898-1.316
2+	4	1.024	0.936-1.112
Combined	284	1.185	0.887-1.483

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APPENDIX 1

PERMANENT FISH POPULATION STATIONS FOR BIG GRIZZLY CREEK AND LITTLE LAST CHANCE CREEK, PLUMAS COUNTY, SEPTEMBER 1986

APPENDIX 1

PERMANENT FISH POPULATION STATIONS FOR
BIG GRIZZLY CREEK, PLUMAS COUNTY
SEPTEMBER 1986

Fish populations in Big Grizzly Creek were previously sampled near Station 3 (described below) in 1963, 1964, 1965, 1976, and 1981. Additional nearby locations were sampled in 1976 and 1981. In 1986, for the first time, stations were sampled near the abandoned USGS streamgage and just above the confluence with the Middle Fork Feather River.

Station 1 (Streamgage Station) - Located 2.5 stream km below Grizzly Valley Dam and just downstream from an abandoned USGS streamgage at an elevation of 1622 m MSL. The station is about 21 m (70 ft) downstream from the concrete weir and streamgage tower (NE 1/4 of NW 1/4, Section 7, T23N, R14E). Reached via 0.6 km long dirt road that leaves Grizzly Creek Road about 2.7 km south of the intersection with the road to the dam and 8.8 km north of Highway 70. The station is a steep rapid area (67%) with several split channels and small pocket pools that ends in a long, shallow pool (33%). It is 32.5 m long and has a surface area of 246 m^2 and a volume of 77 m^2 at 0.56 cms. Substrate is about 75% boulders, 15% rubble, and 10% sand.

Station 2 (IFN Station) - Located about 3.2 stream km below Grizzly Valley Dam at a fishing access site on the DWR property. The site is located in the center of Section 7, T23N, R14E, at an elevation of 1610 m MSL about 1.1 km from the north end of the Burnham Ranch Road and 2.2 km from the south end. A steep jeep road drops off Burnham Ranch Road to creek level about 70 m downstream from the station. This station was evaluated during an instream flow study conducted in 1981. The upper end of the station is a steep rapid (55%) followed by two deep pools (45%) separated by short rapids. The substrate is mostly rubble (60%), boulder (20%), gravel (10%), with areas of sand (10%) in the pools. The station is 52 m long with a surface area of 276 m^2 and a volume of 88 m^3 at 0.56 cms.

Station 3 (3-Mile Station) - Located about 5.3 km below Grizzly Valley Dam at an elevation of 1549 m MSL in NE 1/4 of NW 1/4, Section 17, T23N, R14E. It is located about 0.6 km down a private dirt road that leaves Burnham Ranch Road about 0.6 km from its south end and loops south along Big Grizzly Creek to join Grizzly Creek Road downstream. Fish populations have been monitored here periodically since 1963. The station begins in a steep rapid followed by more gradual rapid areas (75%) with pocket pools and two larger pools (25%) near the lower end. Substrate is boulder (65%), rubble (20%), sand (10%), and gravel (5%). The station is 56 m long and has a surface area of 273 m^2 and a volume of 106 m^3 at 0.56 cms.

Station 4 (6-Mile Station) - Located about 9.8 stream km below Grizzly Valley Dam and 0.3 km above the confluence with the Middle Fork Feather River at an elevation of 1488 m MSL. The station is located in the SW 1/4 of NW 1/4, Section 28, T23N, R14E) about 0.5 km downstream from Highway 70, just below the old highway bridge and just north of the National Wild and Scenic River boundary. The station begins in a rapid just above a large 0.7 m deep pool (33%) followed by several riffle areas (67%) and shallow pools with undercut banks and overhanging grass clumps. Substrate is rubble (10%), gravel (60%), bedrock (15%), and mud (15%). The station is 103 m long with a surface area of 545 m^2 and a volume of 165 m^3 at 0.56 cms.

PERMANENT FISH POPULATION STATIONS FOR LITTLE LAST CHANCE CREEK, PLUMAS COUNTY SEPTEMBER 1986

Fish populations in Little Last Chance Creek were previously sampled at or near the stations described below in October 1976, and 1981. No fish population data collected prior to the construction of Frenchman Dam are known to exist.

Station 1 (1-Mile Station) - Located 1.6 km below Frenchman Dam just downstream from the first bridge at any elevation of 1659 m MSL in NW 1/4 of NE 1/4, Section 4, T23N, R16E. This station begins in a rapid beneath the bridge carrying Frenchman Lake Road, then enters a pool with a deeply undercut room-sized boulder on the right bank. A 394 mm_, 640 g male brown trout was captured here in 1986. The remainder of the station is a short rapid and a shallow pool/run. About 55% of the station is pool and 45% rapid. Substrate is boulder, rubble, and sand. The station is 35 m long with a surface area of 199 m^2 and a volume of 52 m^3 at a flow of 7 cms.

Station 2 (2-Mile Station) - Located 3.2 km below Frenchman Dam adjacent to the upper end of a large turnout at an elevation of 1610 m MSL in NW 1/4 of SW 1/4, Section 3, T23N, R16E. This station begins in a large plunge pool followed by two shallow pool/run areas and two short rapids. About 45% of the station is pool and 55% rapid. Substrate is boulder, rubble, and sand. The station is 40 m long with a surface area of 233 m^2 and a volume of 71 m^3 at a flow of 7 cms.

Station 3 (Campground Station) - Located 4.4 km below Frenchman Dam adjacent to the cutoff road in the center of Chilcoot Campground at an elevation of 1561 m MSL in NE 1/4 of NE 1/4, Section 10, T23N, R16E. This station begins in a steep rapid followed by a long pool with undercut right bank, then a short rapid, a short pool, and, finally, another steep rapid. The station is 40% pool and 60% rapid. Substrate is boulders, rubble, and sand. The station is 60 m long with a surface area of 369 m^2 and a volume of 99 m^3 at a flow of 7 cms.

APPENDIX 2

LENGTH AND WEIGHT OF RAINBOW TROUT CAUGHT IN BIG GRIZZLY CREEK, 1986

APPENDIX 2

LENGTH AND WEIGHT OF RAINBOW TROUT
CAUGHT IN BIG GRIZZLY CREEK, 1986

Length (mm)	Weight (g)	Length (mm)	Weight (g)	Length (mm)	Weight (g)
62	3	87	8,7,7,7,8	117	20
63	3	88	8,8	118	15
65	3	89	7,9,8,8,8	121	20,20,25
66	4	90	8,8,8,8,8,	122	20
67	4,3		8,8	125	18
68	4,4,4,5	91	9,9,9,9,8,8	126	23,20
69	4,4	92	8,10,8,9,9	128	20
70	4	93	11,9,11,10	136	35
71	4,4	94	9,10	147	35
72	4,4,4,4,5,5,5	95	9,9,9,11,8,9	148	30,30
73	4,4,4,5,5,6	96	10,9,10,10,8	150	30
74	4,5,5	97	10	152	35,35
75	5,5,5,5,6	98	11,11,10,9,	155	38
76	5,5,5,5,6,7		12,10	157	35
77	5,6,6,6	99	11,11,11,10	158	40
78	5,5,5,5,5,	100	10,11,12,12	160	40,50
	6,6,6	102	10,14	161	50
79	6,5	103	11	163	50
80	5,6,6	104	14	166	50,45
81	6,6,6,6,6,6,	105	20	167	50
	6,6,7,6,6	108	20	168	60
82	7,7,6,7,6,7	110	15,15,20	169	52
83	7,7,6,7,7	111	20	173	60
84	6,6,7,7,7	112	15,20,17	174	60
85	8,7,7,7,7,7	113	20	176	55
86	8,7,7,7,8,	114	15,23,15	177	65
	7,8,7	116	20,17	178	65,60,52
				187	70
				189	70
				191	65
				192	75,75
				197	90
				213	105

APPENDIX 3

LENGTH AND WEIGHT OF BROWN TROUT CAUGHT IN BIG GRIZZLY CREEK, 1986

APPENDIX 3

LENGTH AND WEIGHT OF BROWN TROUT
CAUGHT IN BIG GRIZZLY CREEK, 1986

Length (mm)	Weight (g)
155	35
156	35
160	45
165	50
169	50
173	55
176	55,55
177	55
178	60
181	70
191	70
192	70
193	75
197	80
201	85
394	640

APPENDIX 4

LENGTH AND WEIGHT OF RAINBOW TROUT
CAUGHT IN LITTLE LAST CHANCE CREEK, 1986

APPENDIX 4

LENGTH AND WEIGHT OF RAINBOW TROUT CAUGHT IN LITTLE LAST CHANCE CREEK, 1986

Length (mm)	Weight (g)	Length (mm)	Weight (g)
45	1	90	9,9,8
46	1	91	8,8
47	1,1	92	8,8,8
48	1	93	9,9
50	1,2	94	9,7,11
51	2	96	10,10,9
52	2,2,2,2,2,2	97	10
53	2,2,2,2,2,2	99	12
54	2,2,2,2	100	10
55	2,2,2,2,2	101	12
56	2,2,2,3,3	102	12
57	2,3,2	108	20
58	3,2,2,2,2,3	109	15
59	3,3,3,3	110	16
60	3,3,3,3,3,3	113	17
61	3,3,3,3,3,3,3	116	20
62	3,3,3,3,3,3,3,3	118	15
63	3,3,3,4,3,2	120	20,20
64	3,3,3	125	25
65	3,3,3,3	126	25
66	3	127	25
67	4,4,4,4,4,4,4,3,4	128	25,20,25
68	4,4,4,4,3,3	132	25,25
69	4,4,3	133	25
70	4,4,4,4,4	134	25
71	5,4,4,4	135	30
72	5,4,5,4,5,4	138	30,30
73	5,5,4,5,4	140	30
74	5,4,5,5,5,5	141	30
75	5,5,4,5,5,5,5,5	142	30
76	6,5,6,5,6	145	35,30
77	5,6	146	35,35,35
78	5,5,5,5,5,5	148	40
79	5,6,6,7	149	35,30,35
80	7,6,6,6,6,6,6	155	35
81	7,6,5,7,6,6,7,6	159	45,40
82	6,6,7,7	160	45
83	7,8,7,6,6	161	45
84	7	162	45
85	7,6,7,7,7,7,7,8,7	165	50
86	8	166	40
87	8	168	50
88	9	169	55

APPENDIX 4 (continued)

Length (mm)	Weight (g)	Length (mm)	Weight (g)
170	65	215	100
172	55	216	120,110,105
175	55,55	218	110
176	60	219	110
178	65,60	220	140
180	60	222	130
181	65	226	110
182	70	230	130,120
192	85	235	130
194	80	236	200
196	75,85	240	165
206	95	249	190
212	110	253	170

APPENDIX 5

LENGTH AND WEIGHT OF BROWN TROUT
CAUGHT IN LITTLE LAST CHANCE CREEK, 1986

APPENDIX 5

LENGTH AND WEIGHT OF BROWN TROUT
CAUGHT IN LITTLE LAST CHANCE CREEK, 1986

Length (mm)	Weight (g)
93	9
104	14
148	35
165	50
178	75
179	65
180	70
182	70
184	80
186	80
187	85
188	80
190	80
191	95
192	100
196	100,80,85
198	90
199	95,90
204	95
206	125
207	120
210	105
214	125
221	130
257	205
273	240
330	425

APPENDIX 6

METRIC CONVERSION FACTORS

APPENDIX 6

METRIC CONVERSION FACTORS

Quantity	Metric Units	Divide by	English Units
Length	millimetres (mm)	25.4	inches (in)
	centimetres (cm)	2.54	inches (in)
	metres (m)	0.3048	feet (ft)
	kilometres (km)	1.6093	miles (mi)
Area	square metres (m^2)	0.0929	square feet (ft^2)
Volume	cubic metres (m^3)	0.7646	cubic yards (yd^3)
Flow	cubic metres per second (cms)	0.0283	cubic feet per second (cfs)
Biomass	grams per square metre (g/m^2	8.92	pounds per acre (lb/acre)